

Amendments in the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claim 1. (Currently amended) An isolated polypeptide comprising an amino acid sequence selected from the group consisting of SEQ ID NO:2, SEQ ID NO:4 to SEQ ID NO:6, and SEQ ID NO:8 to SEQ ID NO:22, ~~and or a fragment of any of the previous amino acid sequences wherein said fragment has the biological activity of the polypeptide encoded by SEQ ID NO:2.~~

Claim 2-17. (Cancelled)

Claim 18. (Currently amended) A method of treating a disease associated with a *Brachyspira* species, the method ~~including but not limited to *B. hyodysenteriae*, *B. intermedia*, *B. alvinipulli*, *B. aalborgi* and *B. pilosicoli* in an animal~~ comprising administering to ~~the~~ an animal an effective amount of ~~a composition selected from the group consisting of:~~

(i) a polypeptide comprising the amino acid sequence of SEQ ID NO:2 according to Claim 1; or

(ii) the polypeptide of (i) together with an adjuvant, wherein the polypeptide can cause the animal to generate an immune response to the *Brachyspira* species.

Claim 19. (Cancelled)

Claim 20. (Previously presented) The method of treating a disease according to claim 18 wherein the disease is intestinal spirochaetosis.

Claims 21-22. (Cancelled)

Claim 23. (Previously presented) The method according to claim 18 wherein the animal is selected from the group consisting of: pigs, chickens, dogs, horses, cattle, sheep, fish, and humans.

Claim 24. (Previously presented) A composition comprising a carrier and an immunogen wherein said immunogen is a polypeptide according to claim 1.

Claim 27. (Currently amended) An isolated polypeptide comprising an amino acid sequence that is at least 90% homologous to an amino acid sequence selected from the group consisting of SEQ ID NO: 2, ~~SEQ ID NO: 4 to SEQ ID NO: 6, and SEQ ID NO: 8~~ to SEQ ID NO: 22 wherein the polypeptide can, when injected into an animal, cause the animal to generate an immune response to *Brachyspira* species.

Claims 28-30. (Cancelled)

Claim 31. (New) The method of Claim 18, wherein the polypeptide comprises an amino acid sequence corresponding to amino acid residues 305 to 563 of SEQ ID NO:2.

Claim 32. (New) The method of Claim 18, wherein the *Brachyspira* species is *Brachyspira pilosicoli*.

Claim 33. (New) An isolated polypeptide comprising an amino acid sequence corresponding to amino acid residues 305 to 563 of SEQ ID NO:2.

Claim 34. (New) A method for treatment of infection with a *Brachyspira* species, the method comprising administering a therapeutically effective amount of a polypeptide comprising an amino acid sequence corresponding to amino acid residues 305 to 563 of SEQ ID NO:2.

Claim 35. (New) The method of Claim 34, wherein the *Brachyspira* species is *Brachyspira pilosicoli*.